

THAT WHICH IS CLAIMED IS:

1. A method for securing circulation of an encrypted digital document to be reproduced with a document reader, the method comprising:

providing a user with a storage device for storing identification information associated therewith and for storing identification information associated with the document reader, the identification information associated with the document reader comprising an information list identifying document readers used to identify recent document readers operating with the storage device;

identifying from a server connected to a digital data transmission network the storage device in communication therewith;

transmitting to the server over the digital data transmission network

information identifying the digital document to be reproduced, with the information being transmitted from a computer terminal connected to the digital data transmission network and to the storage device, and

the information list and the identification information associated with the storage device, the information list and the identification information being transmitted from the storage device to the server upon connection of the storage device to the server;

determining possible fraudulent use of the storage device based upon the identification information associated with the document reader that is stored in the storage device, the server comparing the information list with an authorized reader list for determining fraudulent use of the storage device;

if the storage device is not being fraudulently used, then transmitting over the digital data transmission network from the server to the computer terminal a decryption key specific to the digital document to be reproduced, with the decryption key being stored in the storage device;

decrypting the digital document based upon the stored decryption key using the document reader connected to the storage device; and

reproducing the digital document decrypted by the document reader.

2. A method according to Claim 1, wherein the decryption key is transmitted from the storage device to the document reader only if the document reader is authorized.

3. A method according to Claim 1, wherein if the storage device is being fraudulently used, then the decryption key is not transmitted from the server to the storage device; and further comprising deactivating the storage device by the server for prohibiting further use of the storage device.

4. A method according to Claim 1, wherein the information list also identifies unauthorized document readers; and wherein fraudulent use of the storage device is also determined if the identification information associated with the document reader is on the information list.

5. A method according to Claim 4, wherein the server builds from the information list identifying the recent document readers operating with the storage device and from the identification information associated with the storage device a table containing, for each identified document reader, a number of

different storage devices used with the document reader; and further comprising:

determining that a particular document reader is unauthorized if the corresponding number of different storage devices used with this document reader exceeds a threshold; and

inserting the identification information of the document reader determined to be unauthorized into an unauthorized document reader list.

6. A method according to Claim 1, wherein if the storage device is being fraudulently used, then the decryption key is not transmitted over the digital data transmission network from the server to the storage device.

7. A method according to Claim 1, wherein if the storage device is being fraudulently used, then the server deactivates the storage device over the digital data transmission network for prohibiting any further use of the storage device for reproducing a digital document.

8. A method according to Claim 1, wherein the decryption key specific to the digital document being reproduced is stored in the storage device in association with the information identifying the digital document to be reproduced; and wherein the document reader transmits to the storage device the information identifying the digital document that has been transmitted to it for reproducing, and then receives from the storage device the decryption key for decrypting the digital document.

9. A method for securing circulation of an encrypted digital document to be reproduced with a document reader, the method comprising:

providing a user with a smart card for storing identification information associated therewith and for storing identification information associated with the document reader, the identification information associated with the document reader comprising an information list identifying document readers used to identify recent document readers operating with the smart card;

identifying from a server connected to the Internet the smart card in communication therewith;

transmitting to the server over the Internet information identifying the digital document to be reproduced, with the information being transmitted from a computer terminal connected to the Internet and to the smart card, and

the information list and the identification information associated with the smart card, the information list and the identification information being transmitted from the smart card to the server upon connection of the smart card to the server; determining possible fraudulent use of the smart card based upon the identification information associated with the document reader that is stored in the smart card, the server comparing the information list with an authorized reader list for determining fraudulent use of the smart card;

if the smart card is not being fraudulently used, then transmitting over the Internet from the server to the computer terminal a decryption key specific to the digital document to be reproduced, with the decryption key being stored in the smart card;

decrypting the digital document based upon the stored decryption key using the document reader connected to the smart card; and

reproducing the digital document decrypted by

the document reader.

10. A method according to Claim 9, wherein the decryption key is transmitted from the smart card to the document reader only if the document reader is authorized.

11. A method according to Claim 9, wherein if the smart card is being fraudulently used, then the decryption key is not transmitted from the server to the smart card; and further comprising deactivating the smart card by the server for prohibiting further use of the smart card.

12. A method according to Claim 9, wherein the information list also identifies unauthorized document readers; and wherein fraudulent use of the smart card is also determined if the identification information associated with the document reader is on the information list.

13. A method according to Claim 12, wherein the server builds from the information list identifying the recent document readers operating with the smart card and from the identification information associated with the smart card a table containing, for each identified document reader, a number of different smart cards used with the document reader; and further comprising:

determining that a particular document reader is unauthorized if the corresponding number of different smart cards used with this document reader exceeds a threshold; and

inserting the identification information of the document reader determined to be unauthorized into an unauthorized document reader list.

14. A method according to Claim 9, wherein if the smart card is being fraudulently used, then the decryption key is not transmitted over the Internet from the server to the computer terminal.

15. A method according to Claim 9, wherein if the smart card is being fraudulently used, then the server deactivates the smart card over the Internet for prohibiting any further use of the smart card for reproducing a digital document.

16. A method according to Claim 9, wherein the decryption key specific to the digital document being reproduced is stored in the smart card in association with the information identifying the digital document to be reproduced; and wherein the document reader transmits to the smart card the information identifying the digital document that has been transmitted to it for reproducing, and then receives from the smart card the decryption key for decrypting the digital document.

17. A system for securing circulation of an encrypted digital document to be reproduced with a document reader, the system comprising:

- a storage device for storing identification information associated therewith and for storing identification information associated with said document reader, the identification information associated with said document reader comprising an information list identifying document readers used to identify recent document readers operating with said storage device;

- a server connected to a digital data transmission network;

- at least one terminal connected to the digital data transmission network and interfacing with

said storage device, said at least one terminal for transmitting to said server

the information identifying said storage device along with information identifying the digital document to be reproduced, and for receiving from said server a specific decryption key for decrypting the digital document to be reproduced, with the decryption key being stored in said storage device, and

the information list and the identification information associated with said storage device, the information list and the identification information being transmitted from said storage device to said server upon connection of said storage device to said server;

said document reader for interfacing with said storage device and for reproducing the encrypted digital document, said document reader receiving from said storage device the decryption key for the digital document to be reproduced and comprising

a memory for storing the digital document to be reproduced,

a decoder for decrypting the digital document to be reproduced based upon the stored decryption key; and

said server determining fraudulent use of said storage device based upon the stored identification information associated with said document reader, said server comparing the information list with an authorized reader list for determining fraudulent use of said storage device.

18. A system according to Claim 17, wherein the decryption key is transmitted from said storage device to said document reader only if said document

reader is authorized.

19. A system according to Claim 17, wherein if said storage device is being fraudulently used, then the decryption key is not transmitted from said server to said storage device; and wherein said server deactivates said storage device for prohibiting further use.

20. A system according to Claim 17, wherein the information list also identifies unauthorized document readers; and wherein fraudulent use of said storage device is also determined if the identification information associated with said document reader is on the information list.

21. A system according to Claim 20, wherein said server builds from the information list identifying the recent document readers operating with said storage device and from the identification information associated with said storage device a table containing, for each identified document reader, a number of different storage devices used with said document reader, said server

determining that a particular document reader is unauthorized if the corresponding number of different storage devices used with this document reader exceeds a threshold; and

inserting the identification information of said document reader determined to be unauthorized into an unauthorized document reader list.

22. A system according to Claim 17, wherein if said storage device is being fraudulently used, then the decryption key is not transmitted over the digital data transmission network from said server to said storage device.

23. A system according to Claim 17, wherein if said storage device is being fraudulently used, then said server deactivates said storage device over the digital data transmission network for prohibiting any further use of said storage device for reproducing a digital document.

24. A system according to Claim 17, wherein the decryption key specific to the digital document being reproduced is stored in said storage device in association with the information identifying the digital document to be reproduced; and wherein said document reader transmits to said storage device the information identifying the digital document that has been transmitted to it for reproducing, and then receives from said storage device the decryption key for decrypting the digital document.

25. A system for securing circulation of an encrypted digital document to be reproduced with a document reader, the system comprising:

- a smart card for storing identification information associated therewith and for storing identification information associated with said document reader, the identification information associated with said document reader comprising an information list identifying document readers used to identify recent document readers operating with said smart card;

- a server connected to the Internet;

- at least one computer terminal connected to the Internet and interfacing with said smart card, said at least one computer terminal for transmitting to said server

- the information identifying said smart card along with information identifying the

digital document to be reproduced, and for receiving from said server a specific decryption key for decrypting the digital document to be reproduced, with the decryption key being stored in said smart card; and

the information list and the identification information associated with said smart card, the information list and the identification information being transmitted from said smart card to said server upon connection of said smart card to said server; said document reader for interfacing with said smart card and for reproducing the encrypted digital document, said document reader receiving from said smart card the decryption key for the digital document to be reproduced and comprising

a decoder for decrypting the digital document to be reproduced based upon the stored decryption key, and

a processor connected to said decoder for determining fraudulent use of said smart card based upon the identification information stored in said smart card.

26. A system according to Claim 25, wherein said smart card comprises a secure memory area for storing the identification information associated therewith.

27. A system according to Claim 25, wherein the decryption key is transmitted from said smart card to said document reader only if said document reader is authorized.

28. A system according to Claim 25, wherein if said smart card is being fraudulently used, then the

decryption key is not transmitted from said server to said smart card; and further comprising deactivating said smart card by said server for prohibiting further use of said smart card.

29. A system according to Claim 25, wherein if said smart card is being fraudulently used, then the decryption key is not transmitted from said server to said smart card; and wherein said server deactivates said smart card for prohibiting further use.

30. A system according to Claim 25, wherein the information list also identifies unauthorized document readers; and wherein fraudulent use of the smart card is also determined if the identification information associated with said document reader is on the information list.

31. A system according to Claim 30, wherein said server builds from the information list identifying the recent document readers operating with said smart card and from the identification information associated with said smart card a table containing, for each identified document reader, a number of different smart cards used with said document reader, said server determining that a particular document reader is unauthorized if the corresponding number of different smart cards used with this document reader exceeds a threshold; and

inserting the identification information of said document reader determined to be unauthorized into an unauthorized document reader list.

32. A system according to Claim 25, wherein if said smart card is being fraudulently used, then the decryption key is not transmitted over the Internet from said server to said smart card.

33. A system according to Claim 25, wherein if said smart card is being fraudulently used, then said server deactivates said smart card over the Internet for prohibiting any further use of said smart card for reproducing a digital document.

34. A system according to Claim 25, wherein the decryption key specific to the digital document being reproduced is stored in said smart card in association with the information identifying the digital document to be reproduced; and wherein said document reader transmits to said smart card the information identifying the digital document that has been transmitted to it for reproducing, and then receives from said smart card the decryption key for decrypting the digital document.